

International Conference INTERVAL'94

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The international conference INTERVAL'94 was held in St.Petersburg, March 7–10, 1994.

There were not only talks about pure interval methods and their applications but more general methods to validate numerical results as well as languages and tools for their implementations were also presented.

Traditionally related fields and applications like control theory and stability analysis covered a large part of the conference. But also new application areas like computer graphics and constraint-logic programming have been explored. Due to the local situation in St.Petersburg a workshop on game theory has been included in the conference.

The main topic of the conference, however, was the interface between interval computations and computer algebra. These two fields which both compute provable, exact results on a computer may profit from each other. In computer algebra systems the computation may be speed up by the use of verified floating-point arithmetic. Symbolic transformation on the other hand heavily contributes to sharply enclose the range of a multidimensional interval function. Precise knowledge of the algebraic structure of a singularity often helps to perform a stability analysis and compute an enclosure of the solution of a problem with high condition number or—which may even be more important—avoid such a computation and thus detect a deficiency of the model.

Total about 100 oral presentations and 10 posters were presented. 103 scientists from 15 countries participated in the conference. Here is the list of plenary lectures.

Monday, March 7, 1994

W. Krandick: Application of interval methods in computer algebra

G. Bohlender: XSC languages, historic development and perspectives

H. J. Stetter: Validation near singularities

Tuesday, March 8, 1994

S. P. Shary: Algebraic approach to some interval problems, or one more application of Kaucher extended arithmetic

A. J. Pritchard: Spectra of uncertain matrices

J. Wolff von Gudenberg: Design of a parallel linear algebra library for verified computation

D. Matula: Progress in hardware assisted validated numerics for personal computers

The conference was not only successful in its scientific task but also in organisational aspects. Simultaneous translation of talks and a lot of sightseeing and social events made it easy to get in contact with all participants and arrange new cooperations especially between western and eastern researchers.